



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2011-0722; Directorate Identifier 2010-NM-262-AD; Amendment 39-17260; AD 2012-23-04]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Model Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are superseding an existing airworthiness directive (AD) for certain The Boeing Company Model 737-100 and -200 series airplanes. The existing AD currently requires various inspections for cracks in the outboard chord of the frame at body station (BS) 727 and in the outboard chord of stringer (S) 18A, and repair or replacement of cracked parts. This new AD adds airplanes to the applicability statement in the existing AD and adds inspections for cracks in the BS 727 frame outboard chords and the radius of the auxiliary chord, for certain airplanes. This new AD also removes the inspections of the outboard chord of S-18A required by the existing AD. This AD was prompted by several reports of fatigue cracking in the frame outboard chord at BS 727 and in the radius of the auxiliary chord on airplanes that were not affected by the existing AD. We are issuing this AD to detect and correct fatigue cracking of the outboard and auxiliary chords, which could result in reduced structural integrity of the outboard chord and consequent rapid decompression of the airplane.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of August 18, 1995 (60 FR 36981, July 19, 1995).

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Alan Pohl, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone (425) 917-6450; fax (425) 917-6590; email [alan.pohl@faa.gov](mailto:alan.pohl@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995). That AD applies to the specified products. The NPRM published in the Federal Register on August 5, 2011 (76 FR 47522). That NPRM proposed to continue to require various inspections for cracks in the outboard chord of the frame at BS 727, and repair or replacement of cracked parts. That NPRM also proposed to add airplanes to the applicability statement in the existing AD and add inspections for cracks in the BS 727 frame outboard chords and the radius of the auxiliary chord, for certain airplanes. That NPRM also proposed to remove the inspections of the outboard chord of S-18A required by the existing AD.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (76 FR 47522, August 5, 2011) and the FAA's response to each comment.

#### **Support for NPRM (76 FR 47522, August 5, 2011)**

Europe Airpost has no objection to the NRPM (76 FR 47522, August 5, 2011), and noted that it has already implemented the procedures in Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, into its maintenance program.

#### **Request to Remove "Total" from Compliance Time**

Southwest Airlines (SWA) asked that paragraph (o) of the NPRM (76 FR 47522, August 5, 2011), which specifies the compliance time as "Before the accumulation of 50,000 total flight cycles, but fewer than or equal to 60,000 total flight cycles, after accomplishing the modification of the outboard chord of the frame. . ." be changed to delete the word "total." SWA states that this would eliminate any confusion as to whether

the subject inspection is to be done between 50,000 and 60,000 total airplane flight cycles, or between 50,000 and 60,000 flight cycles after the modification installation.

We agree with the commenter. The intent of paragraph (o) of this AD is to do the inspection between 50,000 and 60,000 flight cycles after accomplishing the modification. We have changed paragraph (o) of this AD accordingly. In addition, for clarification, we have removed “total” from paragraphs (g), (h)(1), (h)(2), (h)(3), and (h)(4) of this AD.

### **Request to Clarify Certain Compliance Times**

Boeing asked that we clarify the compliance time for the inspection specified in paragraph (i)(1) of the NPRM (76 FR 47522, August 5, 2011). Boeing stated that paragraph (c)(1) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), states “Inspect prior to the accumulation of 4,500 flight cycles after the effective date of this AD.” The new language in paragraph (i)(1) of the NPRM states “Inspect prior within 4,500 flight cycles after August 18, 1995.” Boeing noted that this looks like a typographical error.

We find that there is a terminology error in paragraph (c)(1) of the existing AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), and in paragraph (i)(1) of this AD. We have corrected that paragraph to read: “Inspect within 4,500 flight cycles after August 18, 1995 . . . .” We have also corrected similar terminology in paragraphs (i)(2), (i)(3), and (i)(4) of this AD.

Boeing also asked that we clarify the compliance time specified in paragraph (n) of the NPRM (76 FR 47522, August 5, 2011). Boeing stated that Table 3 of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, specifies “total airplane flight cycles after replacement” and paragraph (g) of the NPRM addresses previously replaced frame upper outboard chords for comparison. Boeing added that paragraphs (n)(1)(i) and (n)(1)(ii) of the NPRM identify the threshold for a replaced frame upper

outboard chord in terms of “total flight cycles,” but Table 3 of that service bulletin identifies the threshold based on cycles “after chord replacement.”

We agree that the compliance time specified in paragraphs (n)(1)(i) and (n)(1)(ii) of this AD should be expressed in terms of flight cycles after replacement of the outboard chords, as identified in Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, not total flight cycles on the airplane. We have clarified the compliance time in paragraphs (n)(1)(i) and (n)(1)(ii) of this AD accordingly.

#### **Request to Include Repair Instructions**

Boeing asked that we include repair instructions in paragraph (o) of the NPRM (76 FR 47522, August 5, 2011) for crack findings during the open-hole eddy current inspection. Boeing notes that no repair instructions are provided. Boeing suggests the following be added for the repair: “Except as required by paragraph (p) of this AD, if any crack is found during the inspection required by this paragraph, before further flight, repair in accordance with Part 3 or Part 4, as applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006.”

We agree with the commenter for the reason provided. In paragraph (o) of the NPRM (76 FR 47522, August 5, 2011), we inadvertently omitted the repair language specified in paragraphs (l) through (n) of the NPRM from paragraph (o) of the NPRM. In the preamble of the NPRM in the “Relevant Service Information” section, we described additional inspections, and repair or replacement if necessary. Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, contains repair instructions in Part 3 and Part 4. Therefore, we have added the text “. . . repair in accordance with Part 3 or Part 4 . . .” to paragraph (o) of this AD. Paragraph (p) of this AD already contains a reference to paragraph (o) of this AD for the exception to the repair procedure.

### **Request to Clarify Repair Instructions**

Boeing asked that we clarify the repair instructions specified in paragraph (l) of the NPRM (76 FR 47522, August 5, 2011) for cracks found in the auxiliary chord. Boeing stated that paragraph (l) of the NPRM specifies “If any crack is found, before further flight, repair in accordance with the requirements in paragraph (p) of this AD.” Boeing noted that paragraph (p) of the NPRM directs the reader to paragraph (s) of the NPRM for an alternative method of compliance (AMOC) if Part 3 or Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, cannot be accomplished. Boeing added that neither Part 3 nor Part 4 provide repair instructions for the auxiliary chord. Boeing added that paragraph (n) of the NPRM provides clear instructions for accomplishing the crack repair.

We acknowledge the commenter’s concerns. The inspection identified in paragraph (l) of this AD is required to detect cracks in the auxiliary chord radius of the frame at BS 727. The inspection identified in paragraph (n) of this AD is required to detect cracks in the forward flange of the outboard chord at BS 727. The repair instructions for those areas are specified in different parts of the Accomplishment Instructions of the service information; therefore, the repair identified in paragraph (n) of this AD should not refer to the same repair instructions as those identified in paragraph (l) of this AD. Since Parts 3 and 4 of the Accomplishment Instructions of the service information do not provide repair instructions for the auxiliary chord, we have clarified the repair instructions in paragraph (l) of this AD by changing the reference from paragraph (p) to paragraph (s) of this AD. In addition, we have removed the reference to paragraph (l) from paragraph (p) of this AD for further clarification.

### **Request to Clarify When Time-Limited Repairs are Required for Certain Airplanes**

Boeing asked that we clarify when time-limited repairs, as specified in paragraph (q) of the NPRM (76 FR 47522, August 5, 2011), installed in accordance with Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, must be

replaced. Boeing stated that paragraph (q) of the NPRM identifies replacement for time-limited repairs installed in accordance with Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; or Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; but does not provide a compliance time for time-limited repairs installed in accordance with Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006. Boeing added that the compliance time specified in Table 6 of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, is not to exceed 4,500 flight cycles from the time of the installation.

We agree to clarify paragraph (q) of this AD. In the NPRM (76 FR 47522, August 5, 2011), we did not refer to airplanes identified in Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, as airplanes affected by paragraph (q) of this AD. However, Step 3.b. of “Part 4 – STA 727 Frame Outboard Chord Time-Limited Repair” of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, specifies doing the replacement of the time-limited repair at the time specified in paragraph 1.E., “Compliance,” of that service bulletin revision (i.e., 4,500 flight cycles after the time-limited replacement). Therefore, we have determined that Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, should be added to paragraph (q) of this AD as a reference for airplanes affected by that paragraph.

#### **Request to Clarify Affected Airplanes**

Boeing asked that the affected airplanes be added to paragraph (j) of the NPRM (76 FR 47522, August 5, 2011). Boeing stated that paragraph (h) of the NPRM identifies the affected airplanes, and that paragraph (j) of the NPRM has similar requirements and should match paragraph (h) of the NPRM.

We agree that the affected airplane models should be added to paragraph (j) of this AD for clarification and consistency. We have changed that paragraph to include the affected airplane models.

Boeing also asked that we clarify paragraphs (g), (h), (i), and (j) of the NPRM (76 FR 47522, August 5, 2011), by specifying that the airplanes affected by those paragraphs, which are restated from AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), are only those Model 737-100 and -200 series airplanes having line numbers 1 through 999 inclusive. Boeing stated that the NPRM requirements do not differentiate for Model 737-200 series airplanes having line numbers beyond 999 and do not identify Model 737-200C series airplanes.

We agree that the restated requirements specified in this AD only affect Model 737 airplanes having line numbers 1 through 999 inclusive. We have added that clarification to paragraphs (g), (h), (i), and (j) of this AD.

#### **Request to Clarify Affected Airplanes Relative to Supplemental Structural Inspection Document (SSID) Inspections**

Boeing asked that we provide clarification of certain affected airplanes in paragraph (s)(5) of the NPRM (76 FR 47522, August 5, 2011). Boeing stated that AD 2008-08-23, Amendment 39-15477 (73 FR 21237, April 21, 2008), only applies to Model 737-200C series airplanes. Boeing added that Boeing SSID D6-37089, Revision E, dated May 1, 2007, applies to Model 737-100, -200, and -200C series airplanes. Boeing also asked that we clarify that AD 2008-09-13, Amendment 39-15494 (73 FR 24164, May 2, 2008), is only applicable to Model 737-300, -400, and -500 series airplanes. Boeing stated that paragraph (s)(5) of the NPRM refers to Boeing 737-400/500/600 SSID D6-82669, dated May 1, 2007, but noted that Model 737-600 is a next generation (NG) airplane, not a 737 “Classic” airplane.

Boeing also asked that the structurally significant item (SSI) F-29 SSID inspections (which describe visual and eddy current inspections of the BS 727 bulkhead



outer chord) in paragraph (s)(5) of the NPRM (76 FR 47522, August 5, 2011) refer to Appendix A of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, for consistency. Boeing states that currently paragraph 1.F. of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, refers to table 1 of Appendix A.

We agree that some clarifications are necessary for the reasons provided by the commenter. Therefore, we have included the appropriate information in paragraph (s)(5) of this AD. We clarified that AD 2008-08-23, Amendment 39-15477 (73 FR 21237, April 21, 2008), applies to Model 737-200C series airplanes. We changed the reference to “Boeing 737-400/500/600 SSID” to the correct reference, which is “Boeing 737-300/400/500 SSID.” In addition, we added a reference to Appendix A, Table 1, of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, for the SSIF-29 SSID inspections.

#### **Request to Clarify Actions Required for Affected Airplanes**

Boeing asked that we clarify actions to be taken for airplanes affected by both the restated requirements and the new requirements of the NPRM (76 FR 47522, August 5, 2011). Boeing stated that paragraphs (g) through (j) of the NPRM are identified as applicable to Model 737-100 and -200 series airplanes; and paragraphs (m) and (n) of the NPRM are applicable to airplanes identified in Tables 2 and 3, respectively, of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006. Boeing noted that Model 737-100 and -200 series airplanes (having line numbers 1 through 999 inclusive) are identified in Groups 1, 2, and 3 of that service bulletin; both tables 2 and 3 of that service bulletin identify Groups 1, 2, and 3. Boeing added that Model 737-100 and -200 series airplanes have threshold and repetitive inspection requirements from both the restated and the new requirements of the NPRM.

We agree with the commenter that some clarification is necessary. We have changed paragraphs (m) and (n) of this AD (new requirements) to include the statement that accomplishing the new inspections in each paragraph ends the corresponding retained inspections in paragraphs (g) through (j) of this AD.

#### **Request to Clarify Revised Paragraph Identifiers**

Boeing asked that we clarify the “Revised paragraph identifiers” table in the preamble of the NPRM (76 FR 47522, August 5, 2011). Boeing states that paragraph (g) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), corresponds to the new paragraph (r) of the NPRM (optional terminating action), not the new paragraph (l) of the NPRM, which is related to auxiliary chord inspections. Boeing also asked that we clarify that the terminating action specified in paragraphs (h) and (j) of the NPRM refers to the terminating action in paragraph (r) of this AD instead of paragraph (l) of this AD.

We agree that there is an error in the “Revised paragraph identifiers” table in the preamble of the NPRM. Paragraph (g) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), pertains to the terminating action in paragraph (r) of this AD; however, since that section of the preamble does not reappear in the final rule, no change to the AD is necessary. We also agree that the terminating action reference in paragraphs (h) and (j) of this AD should refer to paragraph (r) of this AD. We have changed paragraphs (h) and (j) of the final rule accordingly.

#### **Request to Correct Certain Paragraph References**

Boeing asked that we correct the references to paragraphs (l)(1)(i) and (l)(1)(ii) of the NPRM (76 FR 47522, August 5, 2011) specified in paragraph (k)(1) of the NPRM to instead refer to paragraphs (k)(1)(i) and (k)(1)(ii) of the NPRM. Boeing stated that paragraph (l) of the NPRM is related to auxiliary chord inspections, while paragraphs (k)(1)(i) and (k)(1)(ii) of the NPRM relate to the subject crack finding in paragraph (k)(1) of the NPRM.

We agree there is a typographical error in paragraph (k)(1) of the NPRM (76 FR47522, August 5, 2011). Paragraph (l) of the NPRM does not include any subparagraphs and should not have been referenced in paragraph (k)(1) of the NPRM. We have corrected paragraph (k)(1) of the final rule accordingly to refer to paragraph (k)(1)(i) or (k)(1)(ii) of this AD.

In addition, we have clarified paragraph (r) of this AD by referring to inspection paragraphs (g) through (o) of this AD and removing references to paragraphs (p) and (q) of this AD.

#### **Clarification of Service Information Reference**

We have removed the service information referenced in paragraph (k)(2) of the NPRM (76 FR47522, August 5, 2011) because it is redundant to the service information specified in paragraph (k) of the NPRM. Paragraph (k) of the final rule specifies to accomplish (k)(1) or (k)(2) of the final rule in accordance with the service information specified in paragraph (k) of the final rule.

#### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously – and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (76 FR 47522, August 5, 2011) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (76 FR 47522, August 5, 2011).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

### Costs of Compliance

We estimate that this AD affects 574 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

#### Estimated costs

Action	Labor cost	Parts cost	Cost per product	# of U.S. airplanes	Cost on U.S. operators
Various inspections (retained actions from AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995))	4 work-hours X \$85 per hour = \$340 per inspection cycle	\$0	\$340 per inspection cycle	296	\$100,640 per inspection cycle
Ultrasonic inspection (new action)	13 work-hours X \$85 per hour = \$1,105 per inspection cycle	\$0	\$1,105 per inspection cycle	574	\$634, 270 per inspection cycle
Detailed and HFEC inspections (new actions)	13 work-hours X \$85 per hour = \$1,105 per inspection cycle	\$0	\$1,105 per inspection cycle	574	\$634, 270 per inspection cycle

We estimate the following costs to do any necessary repairs that would be required based on the results of the inspections. We have no way of determining the number of aircraft that might need these repairs:

### On-condition costs

Action	Labor cost	Parts cost	Cost per product
Optional modification (retained action from AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995))	50 work-hours X \$85 per hour = \$4,250	\$3,680	\$7,930
Repair of cracking of the outboard chord frame	514 work hours X \$85 per hour = \$42,690	\$13,586	\$57,276
Time-limited repair cracking of the outboard chord frame	63 work hours X \$85 per hour = \$5,355	\$2,732	\$8,087
Repair of cracking of the outboard chord	49 work hours X \$85 per hour = \$4,165	\$4,255	\$8,420

### Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

## **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

## **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), and adding the following new AD:

**2012-23-04 The Boeing Company:** Amendment 39-17260; Docket No. FAA-2011-0722; Directorate Identifier 2010-NM-262-AD.

**(a) Effective Date**

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD supersedes AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995).

**(c) Applicability**

This AD applies to all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes, certificated in any category.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 53, Fuselage.

**(e) Unsafe Condition**

This AD was prompted by several reports of fatigue cracking in the frame outboard chord at body station (BS) 727, and cracks in the radius of the auxiliary chord on airplanes that were not affected by the existing AD (60 FR 36981, July 19, 1995). We are issuing this AD to detect and correct fatigue cracking of the outboard and auxiliary chords, which could result in reduced structural integrity of the outboard chord and consequent rapid decompression of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Retained Initial Inspection: BS 727 Frame Chord Has Been Replaced**

This paragraph restates the requirements of paragraph (a) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), with revised service information. For Model 737-100 and -200 series airplanes having line numbers 1 through 999 inclusive, on which the BS 727 frame upper outboard chord has been replaced as specified in Boeing

Service Bulletin 737-53-1088: Prior to the accumulation of 30,000 flight cycles since replacement of the upper outboard chord, or within 4,500 flight cycles after August 18, 1995 (the effective date of AD 95-12-17) whichever occurs later, perform close visual, pulse echo shear wave (PESW), and high frequency eddy current (HFEC) inspections to detect cracks in the outboard chord of the frame at BS 727, in accordance with Part I of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; or Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006; as applicable. As of the effective date of this AD, use only Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, to accomplish the actions required by this paragraph.

**(h) Retained Repetitive Inspections: BS 727 Frame Chord Has Been Replaced**

This paragraph restates the requirements of paragraph (b) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), with revised service information. For Model 737-100 and -200 series airplanes having line numbers 1 through 999 inclusive, on which the BS 727 frame upper outboard chord has been replaced as specified in Boeing Service Bulletin 737-53-1088: Repeat the inspections required by paragraph (g) of this AD at the time specified in paragraphs (h)(1), (h)(2), (h)(3), and (h)(4) of this AD, as applicable, until the optional terminating action described in paragraph (r) of this AD is accomplished.

(1) If, at the time of the most recent inspection required by paragraph (g) or (h) of this AD, the airplane has accumulated 27,000 or more flight cycles, but fewer than 50,000 flight cycles since the replacement of the outboard chord: Perform the next inspection within 15,000 flight cycles. Repeat the inspection thereafter at intervals not to exceed 15,000 flight cycles until the airplane has accumulated 50,000 or more flight



cycles since the replacement of the outboard chord. Do the inspections required by paragraph (h)(2) of this AD at the time specified.

(2) If, at the time of the most recent inspection required by paragraph (g) or (h) of this AD, the airplane has accumulated 50,000 or more flight cycles, but fewer than 60,000 flight cycles, since the replacement of the outboard chord: Perform the next inspection within 7,500 flight cycles. Repeat the inspection thereafter at intervals not to exceed 7,500 flight cycles until the airplane has accumulated 60,000 or more flight cycles since the replacement of the outboard chord. Do the inspections required by paragraph (h)(3) of this AD at the time specified.

(3) If, at the time of the most recent inspection required by paragraph (g) or (h) of this AD, the airplane has accumulated 60,000 or more flight cycles, but fewer than 70,000 flight cycles, since the replacement of the outboard chord: Perform the next inspection within 5,000 flight cycles. Repeat the inspection thereafter at intervals not to exceed 5,000 flight cycles until the airplane has accumulated 70,000 or more flight cycles since the replacement of the outboard chord. Do the inspections required by paragraph (h)(4) of this AD at the time specified.

(4) If, at the time of the most recent inspection required by paragraph (g) or (h) of this AD, the airplane has accumulated 70,000 or more flight cycles since replacement of the outboard chord: Perform the next inspection within 3,000 flight cycles. Repeat the inspection thereafter at intervals not to exceed 3,000 flight cycles.

**(i) Retained Initial Inspection: BS 727 Frame Chord Has Not Been Replaced or Only Lower Outboard Chord Has Been Replaced**

This paragraph restates the requirements of paragraph (c) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), with revised service information. For Model 737-100 and -200 series airplanes having line numbers 1 through 999 inclusive, on which the BS 727 frame outboard chord has not been replaced, or on which only the lower outboard chord has been replaced as specified in Boeing Service

Bulletin 737-53-1088: Perform close visual, PESW, and HFEC inspections to detect cracks in the outboard chord of the frame at BS 727, in accordance with Part I of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; or Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006; as applicable. As of the effective date of this AD, use only Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, to accomplish the actions required by this paragraph. Perform these inspections initially at the time specified in paragraph (i)(1), (i)(2), (i)(3), or (i)(4) of this AD, as applicable.

(1) For airplanes that have accumulated 27,000 or more total flight cycles, but fewer than 50,000 total flight cycles, as of August 18, 1995 (the effective date of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995)): Inspect within 4,500 flight cycles after August 18, 1995.

(2) For airplanes that have accumulated 50,000 or more total flight cycles, but fewer than 60,000 total flight cycles, as of August 18, 1995 (the effective date of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995)): Inspect within 2,500 flight cycles after August 18, 1995.

(3) For airplanes that have accumulated 60,000 or more total flight cycles, but fewer than 70,000 total flight cycles as of August 18, 1995 (the effective date of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995)): Inspect within 1,500 flight cycles after August 18, 1995.

(4) For airplanes that have accumulated 70,000 or more total flight cycles as of August 18, 1995 (the effective date of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995)): Inspect within 500 flight cycles or 90 days after August 18, 1995, whichever occurs first.

**(j) Retained Repetitive Inspections: BS 727 Frame Chord Has Been Replaced or Only Lower Outboard Chord Has Been Replaced**

This paragraph restates the requirements of paragraph (d) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), with revised service information. For Model 737-100 and -200 series airplanes having line numbers 1 through 999 inclusive, on which the BS 727 frame outboard chord has not been replaced, or on which only the lower outboard chord has been replaced as specified in Boeing Service Bulletin 737-53-1088: Repeat the inspections required by paragraph (i) of this AD at the time specified in paragraphs (j)(1), (j)(2), (j)(3), and (j)(4) of this AD, as applicable, until the optional terminating action described in paragraph (r) of this AD is accomplished.

(1) If, at the time of the most recent inspection required by paragraph (i) or (j) of this AD, the airplane has accumulated 27,000 or more total flight cycles, but fewer than 50,000 total flight cycles: Perform the next inspection within 15,000 flight cycles. Repeat the inspection thereafter at intervals not to exceed 15,000 flight cycles until the airplane has accumulated 50,000 or more total flight cycles. Do the inspections required by paragraph (j)(2) of this AD at the time specified.

(2) If, at the time of the most recent inspection required by paragraph (i) or (j) of this AD, the airplane has accumulated 50,000 or more total flight cycles, but fewer than 60,000 total flight cycles: Perform the next inspection within 7,500 flight cycles. Repeat the inspection thereafter at intervals not to exceed 7,500 flight cycles until the airplane has accumulated 60,000 or more total flight cycles. Do the inspections required by paragraph (j)(3) of this AD at the time specified.

(3) If, at the time of the most recent inspection required by paragraph (i) or (j) of this AD, the airplane has accumulated 60,000 or more total flight cycles, but fewer than 70,000 total flight cycles: Perform the next inspection within 5,000 flight cycles. Repeat the inspection thereafter at intervals not to exceed 5,000 flight cycles until the airplane

has accumulated 70,000 or more total flight cycles. Do the inspections required by paragraph (j)(4) of this AD at the time specified.

(4) If, at the time of the most recent inspection required by paragraph (i) or (j) of this AD, the airplane has accumulated 70,000 or more total flight cycles: Perform the next inspection within 3,000 flight cycles. Repeat the inspection thereafter at intervals not to exceed 3,000 flight cycles.

**(k) Retained Repair, Replacement, and Additional Inspections**

This paragraph restates the requirements of paragraph (f) of AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), with revised service information. If any crack is found in the outboard chord of the frame at BS 727 during any inspection required by paragraphs (g) through (j) of this AD, accomplish paragraph (k)(1) or (k)(2) of this AD, as applicable, in accordance with Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; or Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006; as applicable. As of the effective date of this AD, use only Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, to accomplish the actions required by this paragraph.

Note 1 to paragraph (k) of this AD: Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; and Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006; refer to either Boeing Service Bulletin 737-53-1088, dated December 14, 1989; or Boeing Service Bulletin 737-53-1088, Revision 1, dated May 25, 2006; as an additional source of guidance for procedures to replace the chord.

(1) For any crack that extends from the forward edge of the chord or from the forward fastener hole, but that does not extend past the second fastener hole, accomplish the actions specified in either paragraph (k)(1)(i) or (k)(1)(ii) of this AD. Thereafter,

perform initial and repetitive inspections in accordance with paragraphs (g) and (h) of this AD.

(i) Prior to further flight, install the time limited repair. Within 4,500 flight cycles or within 18 months after accomplishing the time-limited repair, whichever occurs first, replace the outboard chord. Or

(ii) Prior to further flight, replace the outboard chord.

(2) For any crack that extends from the forward edge of the chord, or from the forward fastener hole, and that extends past the second fastener hole, prior to further flight, replace the outboard chord. Thereafter, perform initial and repetitive inspections in accordance with paragraphs (g) and (h) of this AD.

**(l) New Initial and Repetitive Inspections: BS 727 Auxiliary Chord**

For airplanes identified in table 5 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006: Before the accumulation of 27,000 total flight cycles, or within 5,000 flight cycles after the effective date of this AD, whichever occurs later, do internal detailed and HFEC inspections to detect cracks in the auxiliary chord radius of the frame at BS 727, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006. Repeat the inspections thereafter at intervals not to exceed 15,000 flight cycles until the optional terminating action described in paragraph (r) of this AD is accomplished. If any crack is found, before further flight, repair in accordance with the requirements of paragraph (s) of this AD.

**(m) New Initial and Repetitive Inspections: BS 727 Frame Chord Has Not Been Replaced and Has Not Been Modified**

For airplanes identified in table 2 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006: Do the applicable inspections required by paragraph (m)(1) or (m)(2) of this AD at the time specified, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service

Bulletin 737-53A1166, Revision 2, dated May 25, 2006. Except as required by paragraph (p) of this AD, if any crack is found during any inspection required by paragraph (m)(1) or (m)(2) of this AD, before further flight, repair in accordance with Part 3 or Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, as applicable. Repeat the inspections until the optional terminating action described in paragraph (r) of this AD is accomplished. Accomplishing the inspections in this paragraph ends the inspections required by paragraphs (i) and (j) of this AD.

(1) For airplanes on which the inspections specified in Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; or Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; have not been performed as of the effective date of this AD: Do the inspections required by paragraphs (m)(1)(i) and (m)(1)(ii) of this AD at the time specified.

(i) Before the accumulation of 27,000 total flight cycles, or within 5,000 flight cycles after the effective date of this AD, whichever occurs later: Do ultrasonic and surface HFEC inspections to detect cracks in the forward flange of the outboard chord of the frame at BS 727. Repeat the inspections thereafter at intervals not to exceed 5,000 flight cycles.

(ii) Before the accumulation of 27,000 total flight cycles, or within 10,000 flight cycles after the effective date of this AD, whichever occurs later: Do an open hole eddy current inspection to detect cracks in the forward flange of the outboard chord of the frame at BS 727. Repeat the inspection thereafter at intervals not to exceed 15,000 flight cycles.

(2) For airplanes on which the inspections specified in Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; or Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; have been performed as of the effective date of this AD:

Repeat the applicable inspection specified in paragraphs (m)(1)(i) and (m)(1)(ii) of this AD thereafter at intervals not to exceed 5,000 flight cycles for the ultrasonic and surface HFEC inspections, and at intervals not to exceed 15,000 flight cycles for the open hole eddy current inspection.

**(n) New Initial and Repetitive Inspections: BS 727 Frame Chord Has Been Replaced and Has Not Been Modified**

For airplanes identified in table 3 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006: Do the applicable inspections required by paragraph (n)(1) or (n)(2) of this AD at the time specified, in accordance with Part 1 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006. Except as required by paragraph (p) of this AD, if any crack is found during any inspection required by paragraph (n)(1) or (n)(2) of this AD, before further flight, repair in accordance with Part 3 or Part 4, as applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006. Repeat the inspections until the optional terminating action described in paragraph (r) of this AD is accomplished. Accomplishing the inspections in this paragraph ends the inspections required by paragraphs (g) and (h) of this AD. The detailed and eddy current inspections of the outboard chord of S-18A specified in Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, are not required by this AD.

(1) For airplanes on which the inspections specified in Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; or Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; have not been done as of the effective date of this AD: Do the inspections required by paragraphs (n)(1)(i) and (n)(1)(ii) of this AD at the time specified.

(i) Within 27,000 flight cycles since replacement of the upper outboard chord, or within 5,000 flight cycles after the effective date of this AD, whichever occurs later: Do

ultrasonic, low frequency eddy current, and edge HFEC inspections to detect cracks in the forward flange of the outboard chord of the frame at BS 727. Repeat the inspections thereafter at intervals not to exceed 5,000 flight cycles.

(ii) Within 27,000 flight cycles since replacement of the upper outboard chord, or within 10,000 flight cycles after the effective date of this AD, whichever occurs later: Do an open hole eddy current inspection to detect cracks in the forward flange of the outboard chord of the frame at BS 727. Repeat the inspections thereafter at intervals not to exceed 15,000 flight cycles.

(2) For airplanes on which the inspections specified in Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; or Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; have been done as of the effective date of this AD: Repeat the applicable inspection specified in paragraphs (n)(1)(i) and (n)(1)(ii) of this AD thereafter at intervals not to exceed 5,000 flight cycles for the ultrasonic, low frequency eddy current, and edge HFEC inspections, and at intervals not to exceed 15,000 flight cycles for the open hole eddy current inspection.

**(o) New One-time Inspection: BS 727 Frame Chord Has Been Modified**

For airplanes identified in table 4 of paragraph 1.E., “Compliance,” of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006: Within 60,000 flight cycles after accomplishing the modification of the outboard chord of the frame at BS 727 at S-18A, but no earlier than 50,000 flight cycles after accomplishing the modification; do a one-time follow-on open hole eddy current inspection to detect cracks in the modified chord, in accordance with Part 8 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006. Except as required by paragraph (p) of this AD, if any crack is found during the inspection required by this paragraph, before further flight, repair in accordance with Part 3 or Part 4, as



applicable, of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006.

**(p) New Repairs**

If any crack is found during any inspection required by paragraphs (m), (n), or (o) of this AD, and the repairs specified in Part 3 and Part 4 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, cannot be installed using the procedures identified in this service bulletin: Before further flight, repair using a method approved in accordance with the procedures specified in paragraph (s) of this AD.

**(q) New Replacement of Time-Limited Repair**

For any airplane on which a time-limited repair is installed on the outboard chord of the frame at body station BS 727 as specified in Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; or Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006: Within 4,500 flight cycles after installation of the repair, or within 6 months after the effective date of this AD, whichever occurs later, replace the repair in accordance with Part 9 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006.

**(r) New Optional Terminating Action**

Accomplishment of the applicable action specified in paragraph (r)(1) or (r)(2) of this AD, in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994; Part II of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995; or Part 6 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006; constitutes terminating action for the inspections required by paragraphs (g) through (o) this AD.

(1) Installation of the preventative modification.

(2) Replacement of the cracked chord and installation of the preventative modification.

**(s) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be e-mailed to:

[9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto:9-ANM-Seattle-ACO-AMOC-Requests@faa.gov).

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved previously in accordance with AD 95-12-17, Amendment 39-9268 (60 FR 36981, July 19, 1995), are approved as AMOCs for the corresponding provisions of this AD.

(5) For airplanes identified in Tables 2, 3, and 5 of paragraph 1.E., “Compliance” of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006: The Manager, Seattle ACO, approves the inspection methods, thresholds, and repetitive

intervals defined in Appendix A, Table 1, of Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006, as an AMOC for the inspections of the structurally significant items (SSIs) identified in paragraphs (s)(5)(i) and (s)(5)(ii) of this AD. This approval applies only to SSIs F-29A and F-29B of the applicable supplemental structural inspection document (SSID) and only for the portions of the BS 727 outer chord that have been inspected or that have been repaired or modified in accordance with Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006. All provisions of ADs 2008-08-23, Amendment 39-15477 (73 FR 21237, April 21, 2008); and 2008-09-13, Amendment 39-15494 (73 FR 24164, May 2, 2008); that are not specifically referenced in this paragraph remain fully applicable and must be done. If operators choose this AMOC, they must revise their FAA-approved maintenance or inspection program to incorporate the alternative inspections in this paragraph.

(i) Inspections of SSIs F-29A and F-29B required by paragraphs (g) and (h) of AD 2008-08-23, Amendment 39-15477 (73 FR 21237, April 21, 2008), which applies to Model 737-200C series airplanes (Boeing 737-100/200/200C SSID D6-37089, Revision E, dated May 1, 2007).

(ii) Inspections of SSIs F-29A and F-29B required by paragraphs (g) and (h) of AD 2008-09-13, Amendment 39-15494 (73 FR 24164, May 2, 2008), which applies to Model 737-300, -400, and -500 series airplanes (Boeing 737-300/400/500 SSID D6-82669, dated May 1, 2007).

**(t) Related Information**

For more information about this AD, contact Alan Pohl, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6450; fax: (425) 917-6590; email: [alan.pohl@faa.gov](mailto:alan.pohl@faa.gov).

**(u) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(i) Boeing Alert Service Bulletin 737-53A1166, Revision 2, dated May 25, 2006.

(ii) Reserved.

(4) The following service information was approved for IBR on August 18, 1995 (60 FR 36981, July 19, 1995).

(i) Boeing Alert Service Bulletin 737-53A1166, dated June 30, 1994, including Addendum, approved for IBR August 18, 1995 (60 FR 36981, July 19, 1995).

(ii) Boeing Service Bulletin 737-53A1166, Revision 1, dated May 25, 1995, including Addendum, approved for IBR August 18, 1995 (60 FR 36981, July 19, 1995).

(5) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(6) You may view this service information at FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(7) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on October 16, 2012.

John P. Piccola,  
Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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